IN THE CLAIMS:

These claims will replace all prior versions of claims in the present application. Cancel claims 1-12 and replace them with new claims 13-25.

13. (New) A device for monitoring the water resistance of a case of an electronic timepiece including a time base for generating a standard frequency signal and a central processing unit for determining the time from the standard signal, wherein it includes an electronic sensor capable of measuring fluctuations in the concentration of a gas in the atmosphere contained in the case, the results of the measurement carried out by the electronic sensor being processed by the central processing unit which, in response to the measurement signal, emits, if necessary, an acoustic or visual warning alarm.

14. (New) The device according to claim 13, wherein the sensor includes means for measuring said concentration continuously or intermittently and generating an alarm signal as soon as it detects a fluctuation in the value of the concentration of the gas greater than a predetermined value.

15. (New) The device according to claim 14, wherein the electronic sensor includes a differential measuring bridge.

16. (New) The device according to claim 13, wherein the enclosed space is provided with a valve for forcing gas therein.

17. (New) The device according to claim 13, wherein the sensor includes electrical heating means whose role is to keep a thermally and electrically insulated membrane at a constant temperature.

18. (New) A method of monitoring the water resistance of a case of a timepiece, wherein it includes the steps of:

- introducing a gas with an initial concentration into the atmosphere contained in the case;
- measuring the initial concentration of gas;
- continuously or intermittently measuring the concentration of gas, and
- generating an alarm when the measured concentration of gas is different from the initial concentration of said gas or when the leak rate exceeds a predetermined value.

19. (New) The method according to claim 18, wherein before measuring the concentration of gas, the ambient temperature is measured.

20. (New) The method according to claim 18, wherein the case is filled with gas by opening the latter, filling it with gas, then sealing it in a water resistant manner.

21. (New) The method according to claim 18, wherein the enclosed space is filled with gas via a valve.

22. (New) The method according to claim 18, wherein the gas present in the atmosphere of the enclosed case is an inert gas.

23. (New) The method according to claim 22, wherein the concentration of inert gas in the atmosphere of the enclosed case is less than its concentration in the ambient air.

24. (New) The method according to claim 22, wherein the inert gas is carbon dioxide or helium.

25. (New) The method according to claim 23, wherein the inert gas is carbon dioxide or helium.